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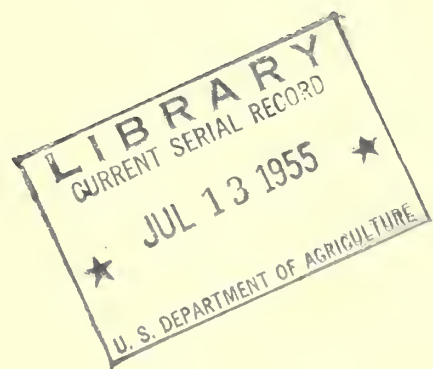
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FOOD DISTRIBUTION

Research, Educational,
and Service Work
of the

U. S. Department of Agriculture



UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

Washington, D. C.

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PREFACE

Improvements in wholesaling and retailing are important not only to food distributors but also to consumers and farmers. Notwithstanding the substantial improvements made in food wholesaling and retailing during recent years, the performance of these functions requires over half the total costs of marketing farm products. Retailing is particularly important from another viewpoint, since it is in the retail store that the consumer decides whether to take a product or leave it.

Most of the Department's research and educational programs directed to improving the wholesaling and retailing of food are new compared with some of the service programs such as market news, grading and inspection. Consequently, they are less well known among those engaged in food distribution. This report is intended to increase familiarity with the nature and objectives of the related activities by providing a brief but comprehensive statement on the research, educational, and service work currently under way in the U. S. Department of Agriculture on food distribution.

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FOOD DISTRIBUTION RESEARCH AND EDUCATIONAL AND SERVICE
WORK OF THE UNITED STATES DEPARTMENT OF AGRICULTURE

INTRODUCTION

Marketing research, education, and service was first formally recognized as a distinct field of work in the Department of Agriculture with the establishment of the Office of Markets in 1913. Similar work in agricultural production was by then well established, and had been extended, for some commodities, to include marketing processes. Separate organizational recognition of the marketing work reflected growing public concern with problems arising from the increasing scope and complexity of the marketing of farm products. By the end of the first World War the office had become the Bureau of Markets. Its program involved research on a variety of marketing problems including supply and demand studies, improvement in preparation of products for market, cooperative marketing, transportation, and methods and costs of distribution; conduct of a market news service; development of grade standards; and the administration of a number of regulatory acts.

Public concern with agricultural marketing problems continued in the interwar period, with the collapse of farm prices in 1920-21, the ensuing agricultural depression of the twenties, and the general economic depression of the thirties. During these decades the organization of the marketing work of the Department was modified from time to time to meet changing needs. But the work as a whole continued to receive emphasis. The variety of marketing services increased. The scope of research widened to include secondary and later stages of marketing in addition to those nearest the farm.

A result of this work was a broadening and clarification of understanding of the role and importance of marketing. Studies brought out the costs necessarily involved in performing the essential and useful functions required in marketing farm products and the extent of dependence of farmers and consumers jointly upon the marketing system. The studies also indicated that in marketing, as in farm production itself, there were substantial opportunities for developing more efficient, less costly methods and practices, to the joint benefit of farmers, consumers, and the marketing firms themselves. It also became evident that agriculture and the marketing industries had a common interest in developing and expanding the markets for farm products.

The broadened purposes and scope of the Department's present marketing research, educational, and service work are set forth in Public Law 733 - 79th Congress. Title I of this Act authorizes "Research relating to the improvement of the quality of, and the development of new and improved methods of the production, marketing, distribution, processing, and utilization of plant and animal commodities at all stages from the original producer through to the ultimate consumer"

Title II, the "Agricultural Marketing Act of 1946," which authorizes an expanded program of marketing research, service, and educational work

by Federal and State agencies", declares "that a sound, efficient, and privately operated system for distributing and marketing agricultural products is essential to a prosperous agriculture and is indispensable to the maintenance of full employment and to the welfare, prosperity, and health of the Nation. It is further declared to be the policy of Congress to promote through research, study, experimentation, and through cooperation among Federal and State agencies, farm organizations and private industry a scientific approach to the problems of marketing, transportation, and distribution of agricultural products similar to the scientific methods which have been utilized so successfully during the past 84 years in connection with the production of agricultural products so that such products capable of being produced in abundance may be marketed in an orderly manner and efficiently distributed."

Organization of the Program

Better to effecuate the increased interest in marketing work, the reorganization of the Department in 1954 brought together most marketing research and service programs in a single agency, the Agricultural Marketing Service. A companion agency, the Foreign Agricultural Service, brings together activities relating to foreign trade in farm products. Educational work, including that in marketing, focuses in the Federal Extension Service, established to assist the Extension Services in the States. Research cooperation with the States is coordinated through the Experiment Stations Divisions of the Agricultural Research Service. In addition, the Farmer Cooperative Service conducts research, service, and educational work on problems of farmers' cooperative marketing associations, and uses cooperatives as a laboratory for research of general application, results of which are made publicly available.

Chief responsibility for marketing research in the Agricultural Marketing Service is in the Marketing Research Division. Its work is carried out through four branches: The Biological Sciences Branch, the Market Development Branch, the Market Organization and Costs Branch, and the Transportation and Facilities Branch. A substantial part of the Division's research is conducted in cooperation with State agricultural experiment stations, including participation in regional research programs of the stations, and through contract with nongovernmental research agencies. Also, research of the Farmer Cooperative Service is closely coordinated with that of the Marketing Research Division.

The Agricultural Economics Division, AMS, conducts other research related to marketing, especially analyses of demand and supply for farm products and the market forecasting work that is the basis for the Department's outlook work.

The Agricultural Estimates Division is the primary source of basic statistical data on agriculture. It issues periodic reports on crop prospects, livestock and poultry numbers, production of all major crop and livestock products, storage stocks, prices received and paid by farmers, parity prices, and farm employment and wage rates.

Marketing service and regulatory programs are conducted chiefly through the commodity divisions of AMS. They are responsible for the development and promulgation of grades and standards for agricultural commodities and the provision of inspection services at shipping, processing, and receiving points. They likewise conduct the Market News Services that provide current reports of supplies, prices, movements, and market conditions. They also are responsible for the administration of various regulatory laws aimed at protecting growers, handlers, and distributors against unfair practices or economic hazards encountered in the marketing of agricultural products.

The crop and livestock estimating and market reporting services and the inspection services for some commodities are carried on cooperatively with State agencies in most States, usually with the State department of agriculture. The Federal department assists the State departments in the conduct of other marketing service work through a program of matching funds, authorized by the Agricultural Marketing Act of 1946 and administered through the AMS.

The Marketing Information Division coordinates the publication and release of all research findings and material collected and analyzed by the Agricultural Marketing Service. Through reports, press releases, scripts for radio and television, charts, posters, leaflets, and other means, the facts on the marketing of food, from farmers to consumers, and on programs to improve it are made available to the public.

The Food Distribution Division is responsible for a variety of programs to promote wider distribution of farm products, including the National School Lunch Program, and utilization of commodities in surplus. It conducts the Plentiful Foods Program for cooperation with the trade in moving products in current heavy supply.

The whole program of marketing research, service, and educational work depends heavily upon the cooperation of trade and industry. The very nature of marketing research requires that most of the work be done within the

market itself, so that reliance must be placed upon the willingness of marketing firms to supply necessary data and to make their plants and stores available for experimentation.

Educational programs are carried on largely by working with and through trade and industry groups and organizations. Crop and livestock statistics are compiled from reports submitted by farmers and marketing establishments, as is the information disseminated through the market news services. This wide voluntary cooperation of private industry in these activities is testimony to the mutuality of interest that underlies the whole program of the Department in this field.

Scope of Activities Relating to Food Distribution

The pages that follow summarize briefly the present marketing research, service, and educational work of the Department that has particular application to food distribution. This includes, in the case of research, work in fields ranging from increasing the efficiency of physical handling operations to developing and testing merchandising practices for more effective sale of food products. It also includes a substantial amount of research of more general application, but useful to the distributive trades--current market-forecasting work, study of longer-time trends and technological developments as they affect marketing, research on problems of adjustment in pricing practices and the organization of markets in the light of changing marketing methods and channels of movement, and studies of consumer preferences and buying behavior. Service and educational activities include the market news and grades, standards, and inspection programs; work directly with wholesalers and retailers to demonstrate and assist them in applying new methods of handling and merchandising products; and the promotion of foods in abundant supply.

I. AREAS OF DIRECT APPLICATION

A. More Efficient Physical Handling and Facilities

Wholesale and retail distribution of farm and food products involve the physical handling of millions of tons of merchandise each year. Wholesalers unload products from carriers; move them into, within, and out of their warehouses; load them on trucks; and unload them at the retail stores or restaurants or institutions. Retailers move the merchandise into the back room; price mark it and, in case of perishables, recondition it and package it; and move it to display shelves and cases; after the customer makes her selection--package and check it out; and finally put it in the customer's car. Physical handling involves 75 to 85 percent of the labor required for food distribution. Moreover, rough and excessive handling results in losses to marketing agencies through spoilage and waste that aggregate millions of dollars annually.

The overall objective of the research in this area is to make the labor employed more efficient and to reduce spoilage and waste. The research is

directed to problems of a functional character and economic analysis and industrial management techniques are combined to obtain increased efficiency in the distributive channels.

Surveys are made of the food industry to determine current handling and operating practices and to discover those firms that appear to have the best practices for the function and department being studied. Then detailed economic and engineering type analyses are made of those practices that appear to be performed most efficiently in firms with different volumes, equipment, methods, and location characteristics. After the typical methods of performing the operation are studied new and usually improved work methods, equipment, layout, materials, and operational practices are developed and tested under operating conditions. All of the research is conducted in close cooperation with the distributive industry and all of the basic data are obtained directly from operating results of the firms studied.

New facilities for food distribution usually are planned to make possible savings in handling costs and reduction of waste. The Department develops improved designs for the facilities and cooperates with industry in getting the facilities constructed. In some instances this involves the detailed analysis and planning of a complete food distribution center, as in the case of Philadelphia, to the planning of individual retail stores and wholesale houses. The Department has furnished plans for the construction of most of the wholesale produce markets recently constructed.

B. Personnel Management

The research initiated by the Department in this area grew out of the research on improved handling and operating practices; it has been abundantly demonstrated that the development of these improved practices is worth little unless the firms' operating personnel will use them. Research concerned with improving personnel management has been effectively used by many manufacturers and other firms. Increased productivity has been obtained and resistance to new procedures reduced through better organization and coordination of work groups, improved methods of introducing new operating procedures, and better training techniques. However, there has been little application of these experiences to the food distribution industry. The development of the Department's research has aided in demonstrating that better personnel management practices can contribute to increased productivity in food distribution as tangibly and directly as improved handling facilities and equipment.

The objective of this general area of research is to help obtain the full potential value of sound operating procedures and improved handling methods by better personnel management practices, thus holding down the cost of distributing food. The research is designed in part to develop and test training and retraining techniques which can be applied by operators to reduce resistance to and win more enthusiasm for labor-saving procedures

and equipment. Other research is directed toward improving managerial skills and increasing the effectiveness of communication between the store manager and his wholesale suppliers or central chain store organization so managers may learn and use improved distribution methods with a minimum amount of delay.

C. Management Practices

Improved handling procedures, facilities, operating practices, and personnel policies are insufficient to maximize efficiency unless efficient management practices also prevail. Management must be able to organize operations efficiently and maintain adequate records for control. Management practices in respect to such things as buying procedures, delivery schedules, inventory control, and pricing policies affect operational efficiency and waste.

The objective of the research in this area is to develop management practices that will increase the efficiency of the operation. Answers are being sought for such questions as: What reports should be provided to store managers and supervisors to help them control expenses? What specific programs can operators use to control waste? How can managers and supervisors be effectively encouraged to organize and plan the work of their departments, stores, and warehouses? What kinds of performance reports can be developed and how can they be used effectively?

Research in this area by the Department as well as other agencies has been fragmentary. Most of it has been developed in connection with other projects concerned with increasing operating efficiency.

D. Quality Maintenance

Economic loss results not only from outright spoilage but also from deterioration in quality. The impact in large part is at the distributive level, although it may be due to causes in harvesting, packing, shipping, and storage. The Department has an extensive program of biological research on Physiological causes of spoilage and deterioration and on treatments to prevent them (also to prevent insect infestation). At the wholesale and retail level several specific studies have been undertaken on how to prevent spoilage and loss.

A study of the behavior of fruits and vegetables in nonrefrigerated display cases, with and without overnight cold storage and in refrigerated cases, refrigerated mechanically and with ice is nearly completed. The defects that develop in fruits and vegetables during retail display have been described and methods to prevent these losses have been worked out.

Testing chemical treatments and other means to prevent decay in fruits and vegetables as they move through marketing channels is another project that bears directly on preventing spoilage. Of equal importance is the work done on the transit refrigeration of crops like tomatoes and peppers

that subsequently spoil if held much below 50° for several days or a week, and for early pears that benefit by shipping them at moderate temperatures that will initiate ripening.

In keeping with the increasing demand for stable foods excellent in quality, convenient in preparation for the table, and retaining the nutritive value of the fresh product, a vigorous program of appropriate research is maintained. It seeks economy in preparation, transportation, and storage to improve marketing efficiency to the advantage of producer, distributor, and consumer. Frozen orange juice concentrate was developed in a phase of this program, cooperative with the Florida Citrus Commission. More recently orange juice powder and tomato juice powder have neared commercial development as a result of another phase. A third resulted in fruit essences, the volatile flavoring of true fruit as we have it now. Important advances have been made in processed poultry technology. Still another has resulted in the stable egg powder without which most of today's prepared cake mixes would not be practicable. Dehydrofreezing, a Department process by which certain fruits and vegetables can be reduced by half in weight and bulk without quality loss, then preserved by freezing, is just being commercialized.

Current activity is directed to improvement in milk concentrates, to development of potato flakes and other concentrated potato products, to improvement in processing cherries, prunes, blueberries, walnuts, sweet potatoes and other fruits and vegetables, to develop the technology of frozen baked goods and to many other projects.

E. Packaging

Packaging of food products occurs at all stages of distribution and research concerned with packaging is done at all levels. It has for its objectives: (1) Development of better and cheaper packages or containers that are best adapted to efficient methods of handling and shipping; (2) use of packages to extend market life and maintain quality; (3) standardization and simplification of containers; (4) increased efficiency of packaging operations; and (5) economic evaluation of types, sizes, and designs of containers.

Illustrative of the research to extend market life is that done for pears by packing them in polyethylene-lined boxes which are kept sealed during storage. When packed in this manner, the fruit does not shrivel and it keeps a month or two longer than the ordinary pack. It also holds up better in the distributive channels.

Research designed to increase the efficiency of packaging operations at the wholesale and retail levels has been directed primarily to packaging meat and produce. The objective has been to develop improved work methods, materials, equipment, workplace arrangements, and back room layouts to perform the packaging or unitizing operation.

Packaging is also an important factor in merchandising and research is conducted on the effect of different styles and sizes of packages on consumer acceptance and retail sales volume.

F. Market Development and Merchandising

The development of new products and the improvement of existing products are key factors in maintaining present markets and developing new ones. The primary purposes of the work in this area in the Department are to determine: (1) Market potentials for various agricultural products; (2) economic aspects of expanded or alternative outlets for new or established agricultural products; (3) economic feasibility of byproduct utilization; and (4) development of merchandising practices which will result in larger sales to consumers.

Research during the recent past has been directed toward appraisal of new product potentials and a study of potential markets for other commodities which are in surplus supply. Illustrative of the research in this area is that of testing and evaluating the possibilities of expanding outlets for frozen grapefruit sections. Another study in this general area was one made on the implication of changes in consumption, prices, and merchandising methods for milk on net returns to producers and distributors in Memphis, Tenn.

Merchandising research currently underway in the Department is designed to test and evaluate the effect of the use of selected retail merchandising practices--packaging and package sizes, type, size, and location of displays, pricing differentials, and methods of pricing and promotion--upon sales of and consumer demand for selected commodities. Alternative methods of merchandising a product are being evaluated by measuring comparative consumer purchases using applications of the rotational-type experimental designs to eliminate time and store differences.

Illustrative of the merchandising work being done is that for apples in which the commodity was displayed in combinations of bulk and polyethylene bags (plain and printed) with variations in bag weights and pricing units offered customers. Similar research on alternative methods of merchandising are currently being tested and measured in a series of controlled experiments for potatoes, pears, pork chops, red sour cherries, and carrots.

G. Wholesaling

Research focused on problems at the wholesale level up to the present has emphasized developing methods of increasing the efficiency of independently operated produce and grocery wholesale firms. Materials-handling research now underway with wholesale produce distributors has as its objectives the evaluation of currently-used handling methods and equipment and the development of improved methods and equipment. Emphasis has also been given to designing improved wholesale produce market facilities.

Research with grocery wholesale firms has been primarily directed to improving the work methods and equipment of warehouses and, to a limited extent, toward more efficient delivery, selling, and administrative practices. Many other problems of these types of wholesalers as well as other types of wholesalers and chain store operations remain to be studied.

The proper integration of the wholesaling and retailing functions, as shown by chain store operations, can make possible substantial economies in food distribution. Many independent food wholesalers serving independent retailers have launched or are seriously considering launching broad programs to assist their retailers in becoming more efficient and effective operators and to help the wholesaler reduce his costs. Research in this area is designed to develop effective integration practices primarily for the independent wholesalers and retailers but also for the chain operators where feasible. Research has been focused on the service programs of grocery wholesalers to determine what practices appear to be effective, how they are being used, and what new practices should be followed. Service wholesalers of other types such as fresh fruits and vegetables, meats, poultry, and institutional suppliers have similar problems of coordinating their wholesaling function with the retailing function.

H. Retailing

Most of the Department's research at the retail level has had for its objective to increase efficiency of food distribution through developing improved handling and operational practices. Additional research has been done on merchandising, management, and personnel problems but these studies have been largely of an exploratory nature in a relatively new area of research.

Much of the research has been conducted in supermarket outlets of corporate chains. This type of outlet has advantages in developing results with a minimum expenditure of resources which results are nevertheless applicable to other types of outlets. Improved work methods, materials, equipment, workplace arrangements, layout, and operational practices have been developed for the grocery, meat, frozen food, and produce departments as well as the check-out operation. Some research has been carried on through service wholesalers with the objective of helping independent retailers utilize their selling space to best advantage. Results developed have been made available to the industry through such media as Government publications, trade magazines, public patents, educational agencies, and speeches. As resources become available it is planned to direct more research to working directly with the smaller operators as well as continue to work on the many problems still confronting the supermarket operators.

I. Institutional Outlets

Research studies on the institutional eating places have been limited largely to basic descriptive studies and to the exploration of problems. The increasing significance of institutional outlets is indicated by the

increasing proportion (15 to 20 percent) of the nation's food supply being channeled through them.

A study of public eating places was made in Minneapolis and Fairmont, Minn. in which procedures were developed for studying the importance of eating places as marketers of food. Basic information was assembled as to management practices and costs of food and services of such agencies; and concerning their practices, costs of operation, sources and methods of purchase, and quantities of food handled. In addition the opportunities for further research in this area were evaluated.

Similarly, a beginning has been made in studying the food buying and uses of a selected group of public and private institutions. Basic data obtained were the per capita quantities of food issued to their kitchens, their sources of supply, and the prices paid.

In connection with research on the marketing of individual food commodities, several studies have been undertaken of the uses and preferences of restaurants and other public eating places for particular commodities in their several forms. For example, a survey of the use of frozen foods and their substitution for fresh and canned items by public eating places is now in progress. In addition to the data on purchases in a summer month and a winter month, the reasons for use and nonuse of specific frozen items are being obtained from about 500 restaurants and cafeterias.

II. UNDERLYING RESEARCH

In addition to the work described in section I, several aspects of the broader research program of the Department have implications for food distribution. This research, of course, frequently bears directly on particular operational problems, but its central objective is to develop information generally useful in measuring the changing character and magnitude of economic factors affecting agricultural marketing. It provides a framework or setting within which specific problems can be examined more effectively. The following sections set forth briefly the main areas of this underlying research.

A. Basic Data

An important part of the Department's program is the regular collection and summarization of data concerning factors important to agricultural marketing. Over 600,000 farmers furnish information showing livestock numbers and crop acreages, quantities produced and marketed, quantities held in storage and the like. Price reports are received from numerous first handlers and other marketing agencies. Data regarding quantities of agricultural products processed are collected from many firms engaged in these operations, and information on stocks at particular levels of trading is assembled regularly. Supplementing this information is that provided to the Department by other agencies who collect it from primary sources. Foreign trade data, for example, are collected and summarized by the Department of Commerce.

Unusual statistical problems are faced in determining accurate procedures for determining National aggregates and averages from the small samples which necessarily must be used. A small but important phase of work in the Department is the formulation and testing of improved statistical techniques employed in collecting these basic data.

B Underlying Trends and Their Impact

Department researchers are constantly engaged in combining data on food supplies, demand, prices, and marketings with other economic observations from Government and trade sources to determine and report on the situation and outlook for major commodities, for all food together and the general marketing and transportation situation for farm products. Periodic forecasts are issued for each major group of food products, such as meats, fats and oils, and fruits; on the demand and price picture for farm products intended primarily for farmers and distributors; and on the national food situation. These reports furnish up-to-date information regarding demand and price conditions, food supplies and their utilization, and special developments in the distribution of each group of farm products. The National Food Situation, for example, carries the official estimates of the annual U. S. per capita consumption of each food item, the outlook for retail food prices and discussion of the current food situation and outlook. These reports are designed to help producers adjust their production to expected demand, and help marketing agencies regularize the flow of products from the farm to the ultimate consumer.

Of particular interest to marketing agencies is the reporting of costs of marketing a wide range of farm products and the price differentials--or margins--existing between the successive stages through which these products move from farmer to consumer. The overall purpose of this research is to measure costs and margins and the changes in them, and to analyze the factors influencing them as a basis for suggesting ways of increasing the efficiency of agricultural marketing.

The Marketing and Transportation Situation reports each quarter on the current status of price spreads and marketing charges, and appraises the current situation and outlook for the marketing of farm products.

Since the enactment of the Research and Marketing Act of 1946 this work has been increased markedly, and a number of more detailed examinations have been undertaken. Recent examples include analyses concerning margins and costs involved in the marketing of beef and of egg and poultry products.

In addition to the shorter-range analysis and forecasting, from time to time over the past 30 years, the Department has prepared longer-range projections of supply and consumption of farm products under alternative economic conditions looking ahead for 5 to 25 years. Projected population growth, labor force, rates of productivity and investment, technological developments, changes in yield, and in production practices are all considered.

Despite the complexities involved, this type of research has widespread application ranging from the formulation of acreage adjustment plans and other public programs to the planning for dams, industrial processing plants, and new marketing facilities.

In addition to the overall long-range projections, attention is given to particular developments influencing the operation of the marketing system for farm products in order to provide information to the public and to appraise actual and proposed Government programs. Major technological changes, such as the increasing sale of food in frozen form, are examined in order to assess consequences in terms of the need for new marketing facilities, the capital investments required, and the geographic location of processing facilities and its impact on farm production patterns. Important institutional developments in such fields as labor-management relation or futures trading patterns, are appraised from the standpoint of their effect on costs, the demand for food, and the incidence of risk. The influence of marketing of such governmental programs as those concerning interstate movement of products, price programs, marketing practices, and grades and standards are reviewed to determine their effects on efficiency and prices.

Changes in several factors such as improved facilities in homes, proportion of housewives employed, the drift toward the suburbs in many areas, the forms in which food is retailed and the changing competition among foods are influencing the consumer and institutional demand for food, which in turn bears on numerous questions relating to marketing efficiency, prices, and producer income. Major developments of this character are analyzed as part of the basic program in the Department.

Research is also conducted on problems relating to the efficiency of the pricing system for particular commodities in selected areas. In some exchanges and wholesale markets the pricing process has been affected by the substantial decline in the number of transactions occurring. In other cases differentials for grade and quality existing in retail prices are not fully reflected in differentials prevailing in markets in which farmers sell. The character of the competition in some markets has changed because of the growing size of some purchasers and changes in the pricing practices employed by marketing firms. Methods of price reporting by market informational services need constant study to assure that they are keeping abreast of changing patterns of marketing and the new needs that arise with them.

C. Consumption Patterns and Consumer Behavior

The research of the Department on food consumption, the make-up or patterns of consumption and the factors bringing about those patterns, is of direct importance to food distributors as well as to farmers, processors, and consumers themselves. Two principal sources of information on food consumption are market disappearance data and data from surveys of household consumption and of use of food in eating places and institutions.

The Department prepares annual estimates of the national per capita consumption of each kind of food. Quantities of foods consumed by our civilian population are derived from information on production, stocks, foreign trade, military takings, and nonfood use.

Family survey data provide another measure of consumption. Such surveys were first made by the Department to measure the adequacy of diets. This is still an important reason for doing them, of course, but the data on the distribution of our total food supply among different groups in the population are widely used by people interested in food marketing. National surveys in which the Department has taken part were made in 1936 and 1942, for the urban population in 1948, and for large segments of the rural population in 1948 and 1952. An even more extensive and intensive survey is being made in the spring of 1955.

In recent years, the Department also has obtained family purchase data from private firms and colleges concerning consumer purchases of such commodities as citrus products, dairy products, and margarine.

Because the patterns of food consumption away from home apparently vary in certain outstanding respects from those of household consumption, the pilot surveys of food use in eating places and in public and private institutions, referred to on pages 9 and 10 were undertaken.

Analytical work with consumption data has included (1) detailed descriptions of consumption patterns and changes in rates of consumption; (2) study of interrelationships of the consumption rates and prices among individual commodities and groups of commodities; and (3) attempts to determine and measure the relative importance of major factors affecting rates of consumption and prices paid and changes in them. (Such factors include size and location of the population, family characteristics, income and other measures of economic status, changes in manner of living including demand for additional marketing services with food, technological changes, and other long term trend factors.)

Preferences and buying behavior of household consumers and industrial users of agricultural products are also subjects of research conducted by the Department and in cooperation with State Experiment Stations. These studies are used to guide both industry and Government agencies in merchandising and educational programs and in product development work. It reflects the increasing difficulty, as marketing becomes more and more complex, for the producers and those along the distributive chain to know exactly what is happening to the original commodity, who is using it, whether the product is satisfying consumer needs, and what competition a specific commodity faces. Industry has come to rely less on "individual judgment" and more on objective measurement. Mistakes are costly and large-scale innovations are less speculative if plans are based on careful analysis of consumer wants and small-scale market tests.

Operations at the distributive level often influence greatly the success of a product. In these situations studies are made to ascertain what is being used and why certain selections are made. How, for example, do retail stores market fresh foods, processed foods, garments, and yard goods?

When the problem requires a better understanding of the behavior of the individual consumer, the consumer himself becomes the object of observation. What does he buy? Why does he make certain selections? Does he want prepackaging, different sized packages, or new designs? Such questions as these can be answered when the consumer, either industrial or individual, is asked about his use of and preferences for agricultural commodities.

A variety of "use and preference" problems are dealt with, and thus differing research techniques must be used. If it is important to know the reason the consumer has for certain behavior, a personal interview is required. If information on trends is needed, a panel of reporters often provides the best measure. If information is needed concerning retail operations, store observations and analyses of store records provide good data. If the problem centers around the way of expanding sales, controlled store experiments are needed before large-scale changes are recommended. If a prediction is to be made of the possible success of a new product, a combination of almost all techniques is necessary; taste tests to ascertain what product variations a consumer can detect, a preference study to choose which formulation should be marketed, a use study to identify competitive products and to develop appeals to be used in promotion, a retail store study to measure actual sales on a pilot basis, and a follow-up survey to study consumer reaction and ascertain whether repeat purchases are being made.

III. EDUCATIONAL AND SERVICE WORK IN FOOD DISTRIBUTION

A. Work with Distributors

The Department carries on an expanding educational and service program with the distribution trades to promote the adoption of better handling, management, and merchandising practices. To adapt the work closely to local conditions, it is carried on largely in cooperation with trade organizations and with State agencies.

Since 1947, the Department, in cooperation with the fruit and vegetable industry, has sponsored a nationwide program of training for food wholesalers and retailers and their employees in methods of merchandising fresh fruits and vegetables. This program, conducted under contract, and supported in part with industry funds, provides courses of instruction for retailers designed to aid in improving their handling, packaging, display, and merchandising practices. One course is addressed primarily to retail employees while another is directed to management problems. In addition, under this joint industry-government program, fruit and vegetable wholesalers, retail food chains, and voluntary retail groups are assisted in establishing

merchandising departments and personnel are trained to staff them. One of the principal functions of such merchandising departments is to assist retail food store operators to adopt improved methods of handling and merchandising fresh fruits and vegetables so as to present consumers with better quality products and thus stimulate increased sales while, at the same time, reducing the costs of handling these highly perishable commodities.

As another service to food distributors, many State Departments of Agriculture, with the help of Federal matching funds, provide direct technical assistance to the management of marketing agencies on:

- (a) Handling and organizational practices, plant layout, and equipment that improve efficiency;
- (b) packing, processing, loading, and handling methods that maintain product quality throughout marketing channels, and
- (c) improved merchandising methods that result in better consumer acceptance and increased sales.

The Extension Service program in food merchandising started in 1938 with a limited number of comprehensive clinics in merchandising fresh fruits and vegetables being held in Massachusetts. Since 1947, the program has expanded as new projects have been developed by the Land Grant Colleges and financed on a marketing fund basis with AMA funds. A regional project which has been in operation in the 6 New England States for the past 4 years, has contributed to development of the work in that area. Twenty State programs were in operation during fiscal 1955 and several additional State programs are expected to be started during fiscal 1956.

While the first programs were concerned only with fresh fruit and vegetable operations, work was developed with other departments and overall store problems in some States soon after the AMA program was actively underway. The early fruit and vegetable programs were concerned largely with subjects such as principles and practices of handling and care, displaying, overnight care, pricing, and record keeping. Present-day programs provide meetings and clinics for retailers in areas such as pre-packaging, more efficient handling practices, display, record keeping, merchandising, business outlook, financing, store layout, personnel management, and pricing. Wholesalers have taken a very active part in these programs, sponsoring clinics, developing effective follow-up programs and otherwise assisting in the development of programs in specific areas.

Programs have been broadened at the request of retail and wholesale groups. As the work develops further, more attention will be given to dealing with specific problem areas which local groups of retailers indicate should receive attention.

B. Plentiful Foods and the National School Lunch Programs

The Department administers a number of food distribution programs designed to improve marketing and increase consumption of abundant agricultural commodities.

Perhaps the one best known to food distributors is the Plentiful Foods Program for increasing the movement of foods in abundant supply through regular distribution channels. This is accomplished by enlisting the cooperation and the merchandising know-how of the food distribution industry and the promotional and educational resources of the various informational media.

The regular service that this program offers is a monthly list of foods determined to be in such supply that additional merchandising attention is needed to move them into the hands of consumers. These lists go to all segments of the food trade and their cooperation is sought in stimulating sales of these foods through advertising, display, and other promotional means. Simultaneously, the lists are also sent to newspapers, radio and TV stations throughout the country, as well as to national magazines and other publications reaching both the public and food selling organizations.

The Department has been placing increased emphasis on special merchandising drives in which the food trade and others in a position to help are asked to concentrate their selling efforts during a specified period, usually from two to four weeks. A special effort of this type is undertaken only at the request of producers and after assurance that the particular industry itself will actively participate. The Department's role in these special merchandising drives is to assist in development of a coordinated program embracing producers, food distributors, and the Government to increase sales to consumers.

Another important activity of the Department contributing to broadening the market for foods is the National School Lunch Program. Most of the Department's funds that go into this program are provided to States as cash payments to be used to help schools make local purchases of food. Participating schools are reimbursed for a portion of the cost of the foods purchased for the lunch program, if the lunches served meet meal-type standards established by the Department. By requiring the service of a well-balanced meal, the program opens up increased markets for important foods such as milk, eggs, meats, vegetables, and fruits.

In 1953-54, 10 million children in 56,000 schools participated in the program. These schools purchased \$275 million worth of food from local suppliers. The Federal reimbursement funds made up approximately \$67 million of this total; the rest came from funds raised within the States, primarily from the local communities in which the program operates. Participating schools receive additional assistance in the form of food commodities which are purchased by the Department specifically for the program or made available under price support or surplus removal programs. However, most of the food used in the program is purchased locally by the participating schools.

The Special School Milk Program, announced by the Department on September 10, 1954, is designed to move more milk directly into consumption channels by assisting States and local communities to increase the service of milk in schools. A base is established for each participating school, representing consumption of milk by children last year. Schools purchase milk from regular suppliers and are reimbursed for a portion of the cost of milk served over and above their base consumption. Thus, the program will help to stimulate increased consumption in those schools now serving milk, as well as encourage the establishment of milk services in more schools throughout the country.

C. Consumer Marketing Information Programs

Results of research developed by colleges, Governmental agencies, and industry are used as basic material in consumer information programs conducted by the Land Grant Colleges and by the U.S.D.A. Localized information is most helpful to consumers, and it is the job of the workers in each area to give the consumers helpful facts to guide them in their food purchases. Specialists interpret food marketing in terms of the consumer's interest and welfare. The following types of information are disseminated: (1) Seasonally abundant supplies of food, marketing peaks, and shipment and price comparisons; (2) selection of food, grades, quality, variety, new uses, and food preparation; and (3) marketing research, nutrition, and other information about food. Radio, television, and newspapers are the usual means of presenting this information to the public. Food editors, health and welfare workers, schools, and public institutions also use this food marketing information. Exhibits and demonstrations are used to reach the public with food marketing information and to encourage it to improve its buying practices.

D. Market Information

The Department's market information services are designed to assist producers, shippers, processors, and distributors to appraise available food supplies, develop long-range marketing policies and pricing plans, and make day-to-day adjustments in their buying and selling activities to meet changing market conditions. Of primary interest to producers, shippers, and processors are the periodic estimates of acreage, production, stocks, livestock numbers and prices received by farmers, as described on page 10. These basic data indicating relative volume of supplies to be marketed also are important to handlers at all stages of distribution in the planning of their marketing activities.

Of more immediate interest to distributors are the market news services providing day-to-day information on prices, movement, demand, and supplies in the principal terminal markets as well as the more important areas of production. This type of market information, available for each of the important food groups and disseminated widely by radio, television, news papers, and direct mailings, is an indispensable tool for the food distributor in planning his purchases and sales, establishing prices, and

scheduling merchandising activities. Daily prices in the terminals and at shipping points help him to determine when, where, and how much to buy, while daily reports of rail and truck shipments and receipts in the terminal markets keep him apprised of the flow of commodities to market.

Another market information service useful to food distributors is the monthly report of stocks of frozen and perishable foods in public cold storage warehouses. These are an important statistic in measuring rate of flow of these commodities into consumption through the marketing season.

E. Grading and Inspection

The U. S. Grades for the various foods and the official grading or inspection services are among the important services of the Department contributing to the more orderly flow of commodities to market and facilitating food distribution. The grades provide basic description of quality and other characteristics to assist producers, distributors, and consumers alike in the buying and selling of foods. They help to make market news quotations more meaningful and are used by producers, processors, and other marketing agencies as quality control indicators in preparing products for market.

Even though many of the U. S. grade standards have been in effect for 30 years or more and others are being developed continuously, there are still many foods for which no official grades have yet been issued. Moreover, changes are occurring constantly in the methods of preparation, processing, handling, and merchandising of foods, thus requiring periodic revision of grades to reflect these changes. Most of the official standards are of use primarily in wholesale trade, but for a limited number of commodities grades have been developed for use on a voluntary basis at the consumer level.

In order to provide official certification as to the quality of foods on the basis of the U. S. grades, the Department operates grading or inspection services for each of the important groups of foods. In some instances, these services are conducted entirely by the Department; in others, they are conducted in cooperation with the States. Some of these grading or inspection services are compulsory while others are voluntary; they are supported at least in part by the fees paid by the users of the services.

F. Regulatory Programs

A number of regulatory programs are administered by the Department pursuant to specific acts of Congress. These programs deal largely with the economic aspects of marketing and serve to protect producers and others in the marketing channel against various hazards. Examples are (1) the Perishable Agricultural Commodities Act which is designed to suppress unfair and fraudulent practices in the marketing of fresh and frozen fruits and vegetables, and (2) the U. S. Warehouse Act, which seeks to provide maximum protection against losses of stored agricultural commodities and to provide a sound basis for credit on such commodities. Other acts deal with marketing practices, labeling, and mandatory inspection of commodities.

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